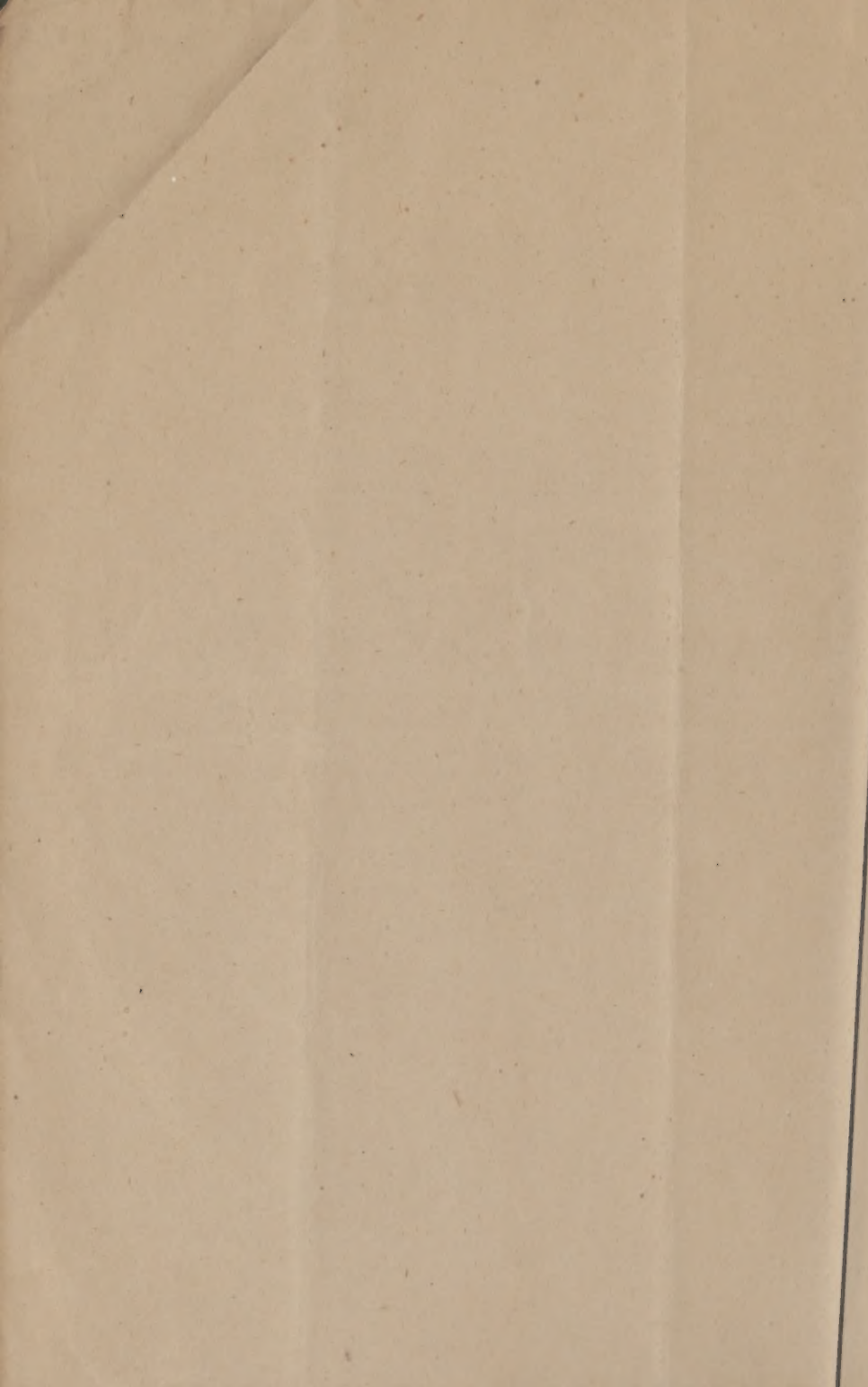


Chesney J. P.

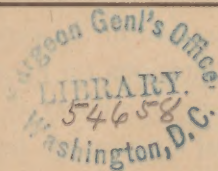
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A NEW THEORY
OF
PLACENTA PREVIA.

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A NEW THEORY OF PLACENTA PREVIA.

A Paper read before the St. Joseph, Mo., Medical Association, February, 1874,
by J. P. CHESNEY, M. D.

An examination of the literature upon the subject of Placenta Previa, discloses the fact that it is only since the days of Levret and Rigby, that the teachings in regard to it placed it upon a definite theoretical basis. These eminent obstetrical authorities followed by many equally sagacious observers since their day, even down to the present, hold, that from some unknown cause, the vivified germ-cell sometimes commences its development in the inferior segment of the uterus, and that the os uteri internum being at the time closed, the placenta may become attached directly over the uterine cervix. The relations between the uterine walls and placenta thus begun, are supposed to remain intact, unless disturbed by some extraneous agency, until the end of the middle period of gestation, or perhaps as late as the end of the fifth month; at this time a certain physiological process is set up—dilatation of the cervical canal, which renders their normal adhesions no longer possible. The dilatation of the cervix commences at the os internum, and is a direct result of a necessity for increase in the dimensions of the uterine cavity, wherewith to accommodate the growing ovum. The dilatation of the canal thus inaugurated, is not completed until the end of gestation,—and then only at the expense of a detachment, partial or complete, between the placenta and walls of the uterus—hemorrhage, more or less dangerous, being the almost inevitable concomitant. The truth of this theory passed unquestioned until a comparatively recent

date, when Stoltz, of Strasburg, followed by Mathews Duncan, of Edinburg; Barnes, of London; Thomas, of New York, and others of equal note, promulgated a new theory—that the uterine cervix is obliterated from below upward, that the cervical canal is not expanded, and that, in fact, the os uteri internum is closed until the end of gestation; that the detachment of the placenta from the uterine walls takes place because the maternal or uterine surface of the placenta becomes too broad in its area to rest on the narrow inferior uterine segment; and that, therefore, the placenta is crowded from the surface on which it grows, etc. Which of the theories above is the most logical, I shall leave to each reader to settle for himself; the two factions agreeing in no one point save that there is a solution of continuity between the uterine and placental surfaces, and hemorrhage as a consequence.

After the above observations as a preface, I will endeavor to set forth my ideas in regard to Placenta Previa, not stopping to combat the notions as presented above, save when it is essential to the establishment of points in the argument.

We have seen that at the time of the fertilization of the germ-cell the os internum uteri is tightly closed, and from some unknown cause the afterbirth finds here a point of attachment, and, unless from some extrinsic agency a disturbance of the adhesion takes place, the development goes steadily onward until the end of the fifth month of pregnancy. The relations of the parts are shown in cut No. 1. The physiological dilatation of the os internum then commences, and as a consequence the harmonious relations between the womb and afterbirth are at an end. If the placenta be cen-



FIGURE No. 1.

EXPLANATION.—Longitudinal section of uterus at end of fifth month of pregnancy. 1. Placenta. 2. Os Uteri Internum. 3. Cervical Canal. 4. Os Uteri Externum.

trally located over the cervix, we have at this time a firm adhesion between the uterine walls and placenta, of at least two and a half or three inches, in every direction from the margin of the os internum; and when the dilatation of the cervical canal commences, instead of the borders of the os becoming detached from its points of connection with the placenta, it carries these identical points with it around its entire circumference, thus leaving a point of placental tissue unsupported and on the stretch.

This point or disk, however small, being without even the actual maternal surface proper to support it, it is a mere parenchymatous structure, tender, yielding, and ready to give up its blood without effort—hence the first hemorrhage of placenta previa. This condition of the parts goes progressively forward, hour after hour, and day after day, each moment strengthening the attachment of the placenta to the womb by a broader margin, and at the same time broadening the denuded

placental area over the cervix, by a continuous dilatation of the canal at its superior extremity—the increased area giving origin to new and repeated hemorrhage. Figure 2 will show the relation of the parts at the end of the seventh month.



FIGURE No. 2.

EXPLANATION.—Longitudinal section of uterus at end of seventh month of pregnancy. 1. Placenta. 2. Os Uteri Internum. 3. Free surface of Placenta. 4. Point of Dr. Barnes' error. 5. Shortened Cervical Canal. 6. Os Uteri Externum.

The same process is repeated continuously, until the end of gestation, the only difference being that it is all conducted on a more extended scale, and that the dangers to mother and child are increased in double ratio—the less able they are to bear the loss of blood, the greater becomes the surface from which it flows. Cut No. 3 will enable the reader better to comprehend the conditions and relations of the uterus, cervical canal and placenta at the time of labor.

It will be seen that dilatation of the internal os involves, from the first moment, a rupture of the uterine surface of the placenta, thus presenting a disk, however

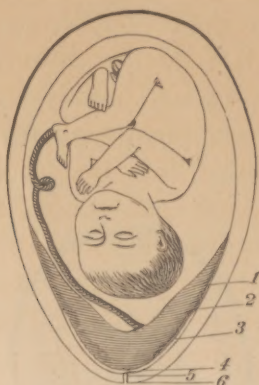


FIGURE No. 3.*

EXPLANATION.—Longitudinal section of uterus at end of ninth month of pregnancy. 1. Placenta. 2. Os Uteri Internum. 3. Free surface of Placenta. 4. Point of Dr. Barnes' error. 5. Shortened Cervical Canal. 6. Os Uteri Externum.

small, from which blood may flow; but, the traumatism may go farther, in the future, and even produce a laceration into the substance of the placental mass, involving in its course both the maternal and foetal portions, thus directly endangering the life of both mother and offspring. That the hemorrhage may occur from each of the lesions named, and not from the uterine walls alone, is clearly demonstrated by noticing the anatomy of the organ. There is a maternal and foetal portion of the afterbirth, in which the circulation is entirely independent one of the other—the vessels of the uterus passing directly into the substance of the mater-

* It will be observed that there is space between the free surface of the placenta and cervical mucous membrane in Cuts No. 2 and 3. It is not claimed that such space actually exists, but that the two surfaces lie in actual non-adhesive contact; the design in the cuts being to show more clearly the os uteri internum, the exposed placental surface, and the extent of the expanded cervical canal.

nal portion of the organ.* The investigations of Prof. Dalton seem to settle this question beyond cavil, he succeeding in throwing air directly from the sinuses in the uterine walls, into the vessels of the uterine portion of the placenta. That lacerations into the substance of the placenta may occur from very slight causes, any one may readily conceive who will remember with what ease the finger penetrates the mass, when the attempt is made to remove it from the uterus, or vagina, after labor; and this is more particularly noticeable in cases where the organ is in an undeveloped, un-matured condition. The rupture into its substance is also made the more probable when in the advanced days of pregnancy the unsupported disk has become quite large, and being, perhaps, only an inch and a half or two inches in thickness, the mechanical force and weight of the amnion and its burden of waters and child, aided by the distended and resisting fundus and abdominal muscles, are brought firmly down upon its foetal surface. It may be a question with some how the hemorrhage is checked when once begun; the reply would be plainly made that the rugged placental tissue would invite the formation of coagula directly in the rent or rents, and thus induce that very condition of the interior of the free disk of the placenta which has been noticed by various observers; it is found "infiltrated

*It is claimed by some German authority that there exists quite a difference in the structure of the placenta when situated abnormally, from what we find when it has its attachments in a proper situation: thus, when the placenta is previa, milk thrown into the vessels of the cord will not appear at, nor flow from, the uterine surface; but, when it has been attached to the fundus or body, it will, when thus injected, flow readily from this surface. If there be truth in this doctrine, it is another confirmation of the position assumed in the text, that rupture into the substance of the placental tissue is necessary to the hemorrhage.

with extravasated blood, rendering it quite distinct in appearance from the rest of the placenta," and commonly there is also a firm clot adherent to the free surface, forming to all intents and purposes a natural tampon.

From the position assumed above, it will be perceived that there need be no detachment of the placenta from its uterine adhesions, and yet all the dangers of placenta previa be present; this condition may not only remain up to the time when labor actually commences, but may even continue until the labor is well advanced—nay, it may be possible that the child be born and the adhesions between the two organs remain undisturbed. The adhesion between the uterine walls and placenta, are not of the fragile nature we are persuaded to imagine, when reading the notions set forth by those who are molding a hypothesis, the very foundation of which is to be "*detachment.*" It is not, I say, of the tender and feeble order as to be broken down by the "painless contractions common in the ninth month of pregnancy." Nor yet by the painless physiological broadening of the lower portion of the inferior segment of the womb to which it is attached; the uterine surface to which the placenta is attached has undergone much of the expansion required of it, at the end of the sixth month, when the demand is made upon the cervix, and at that date is doubtless nearly, or quite, equal in superficial extent to the fundus; consequently the date of the "narrowness" which will allow the placenta to become "crowded" from the surface upon which it grows, no longer exists, and the margins of the placenta are permitted, if need be, to spread even to the fundus in search of a place whereon to develop; the hemorrhage

occurs after the conditions of "detachment" have passed. The theory that cell-proliferation can "crowd" off portions of the firmly attached placenta, strikes the reasoning mind as an extreme absurdity; such a process has no analogue in nature, unless we suppose that the fœtus in the maternal womb is capable of "crowding" the mother from her couch of repose.

We have seen above that a development of placental tissue at the maternal surface beyond a point upon which to attach itself, is quite untenable, not to say absurd; and argument, equally forcible and plain, may be adduced to refute the notion that it is an expansion of the uterine surface to which the placenta is attached, beyond the expansion of the placenta itself, that is the cause of hemorrhage, by producing a detachment of the placenta. Such a detachment cannot take place as the result of a disproportionate growth between the adherent surfaces, as there is nothing to hinder a coincident development of each *here*, as well as at the body or fundus of the womb, and while the expansion of the cervical canal may carry a given point of the uterine surface to which placenta is attached farther from the central point at which the os internum rested before it began its expansion, it does not necessarily follow that a detachment takes place, for common sense will allow that the yielding tissues, in the free disk of placenta, will permit the attached tissues to move with the uterine walls. The question simply rests between the comparative stability of the adhesions between the uterus and placenta, and the tenacity of the parenchymatous structure of the placenta itself. To give an illustration of the first point let us recur to the placental adhesions of a normal gestation—a condition in no way differing from

the adhesions in placenta previa. Here we see numberless jolts, blows, falls, etc., received by the pregnant female—the immense force and indefinite continuance of the uterine contractions—the rude and unskillful manipulations of the accoucheur—and yet the detachment does not occur; and why? Because it is one of nature's conservative measures, necessary for the preservation of both mother and child; and so far as *detachment* is concerned, the rule, I have no doubt, maintained its force to a very great extent, even in placenta previa; at any rate, we are, by this power of resisting detachment, taught the very useful lesson that agencies of a trivial force cannot break the connecting link.

If the placental tissue itself did not yield in the manner I here suppose, I am decidedly of the opinion that in all cases of central location in placenta previa, the attachment between the uterus and placenta would be a serious barrier to the dilatation of the cervical canal; and, therefore, might greatly interfere with the normal progress of gestation.

The successive stages of the broadening of the free placental disk, the points of its attachment to the margin of the os internum, and the relations which the placenta has to the cervical canal, during its progress of dilatation, may be pretty accurately comprehended by an inspection of the cuts. The same points of the placenta which were attached at the margin of the os internum at the moment of commencing expansion, are to be found exactly attached to the same point at the end of the 7th and 9th months; but, as the circumference is greater, new tissue has sprang up doubtless, to occupy intervening space; and thus, by growth of new

tissue also has the widened surface of the unsupported disk been partially accomplished.

The cervical mucous membrane has, at no time, been in adhesive contact with the placenta; and this fact, no doubt, accounts for the almost unanimous remark among writers, in detailing the history of cases of placenta previa—"I found the placenta detached." This is even so, but the condition is one quite different from the one they suppose to be present. It is doubtful whether the longest finger can even touch the nearest edge of the placental attachment at time of labor; and this will be the more readily granted when it is remembered that the womb receives nearly one-third of its volume, at term, from effacement of cervical tissue; and the womb is then about twelve inches in its long diameter. When the same narrator says, "I readily broke up the attachment which I felt at one side," the conclusion is that he has mistaken a tough coagula pressed between the free portion of the placenta and the cervical portion of the womb, for placental tissue. Adhesions between the placental and uterine surfaces cannot, in my opinion, be broken up, except the hand or some long instrument is introduced into the uterine cavity. As we have no cervical adhesions the accidental hemorrhage can in no case come from the cervical portion of the expanded womb; and we must apply our hemostatic agents to other tissues.

Dr. Barnes, in his efforts to prove the point that the cervical canal is not dilated during the last months of gestation, adduces the clinical observation that he has "often felt the os uteri internum tightly closed above the cervical canal, even at commencement of labor; and has verified the fact on dissecting persons dead soon af-

ter delivery," certainly makes a very unsatisfactory point in the last—and I conceive a mistake in the first part of the paragraph; it is not contended by any one, I think, that the whole of the cervical canal is expanded at once, but that it is a gradual process, conducted from above downward, and, that at all moments, from the time the dilatation commences until its completion, there is a point of close contact between the cervical walls, from which the divergence of the expanding surface takes place; this point, remaining, as it always must, at the superior portion of the undilating section of the canal, answers every purpose of a veritable os internum, and to Dr. Barnes' *feel*, has, no doubt, been mistaken for such.

Cut 2 will make plain this condition of the canal at the end of the seventh month, and exhibit the point which may lead to such an error. "Accidental hemorrhage" may certainly occur when the placenta is attached to the inferior segment of the womb as readily as it does when it is normally situated; but it is not my purpose to treat of hemorrhage so occurring, but to speak only of the form which has its exciting cause in the physiological action of the womb alone. And now we come to the interesting practical inquiry—will the new views of the nature of placenta previa here advanced, give us data upon which to build a better treatment than we have heretofore possessed? The answer is that we are not sure that it will. It seems probable that all the early hemorrhages, and even the later ones up to a period in actual labor, when the uterine action is of sufficient force to break up the placental adhesions, may be almost completely controlled by the scientific use of the tampon; it may be made to act mechanically by direct

compression of the hemorrhagic surface, and by taking off the *tension* of the convex surface, as also by occupying space which otherwise may become a receptacle for effused blood. By the thorough expansion, which its proper application may be made to exert upon the superior extremity of the vaginal canal, almost the entire "free disk" of placenta may be subjected to its compression—part of it directly, and the remainder through the intervening cervical tissue with which its marginal portions must be in immediate contact. By the stimulus of the tampon applied as it is directly against the os uteri externum, we may also facilitate expansion at the same time—thus meeting two important indications with one remedy. Of course other proper constitutional treatment should not be disregarded, in the meantime. I believe that too much cannot be said in praise of the tampon in these cases if *properly* applied; its efficacy, as commonly adjusted, is certainly not very well calculated to inspire confidence in its utility, and as a consequence, this valuable resource in these trying cases is often unused, while "meddlesome midwifery" precipitates the very calamity sought to be avoided. "Scanzoni's method of introducing the tampon through a widely extended speculum seems to me the best means of its thorough application. No instrument is better for this purpose than the long quarto-valved old speculum with which the country "womb-doctor" yet supplies his saddle bags; the blades are closed, and a bag three-fourths less than a dairy-salt sack, made of the same material and well-oiled, may be slipped over them, and thus passed into the vagina; the blades are now opened and the sack crammed tightly, from bottom to vulva—the speculum being gradually withdrawn as the filling pro-

gresses;—*fill the vagina full*, apply the T bandage and vulvar compress, and let the patient remain quiet. *The pulse is always a measure of danger* without taking out the tampon to see whether or not hemorrhage continues. The foregoing mode of management is suggested while the danger is not urgent, and we are encouraged to make efforts for the safety of both mother and child; but there comes a time, and that often when we first reach the patient's chamber, that demands *immediate* interference of another and quite different kind; these are cases where hemorrhage has certainly, or quite probably destroyed the child, and death has already laid his icy finger-tips on the life of the mother. Contrary to what we have always before been taught, *adhesion* is now the death of the mother, whilst *detachment* is her haven of hope. It is like this: the placenta is attached to the uterine walls over a point or area supplied by contractile (longitudinal) muscular fibres, which at time of labor will constrict the open vascular mouths on the uterine surface from which the placenta has been removed; the cervical portion is at this time the only tissue in the womb which is undergoing *expansion*, and as the placenta has never at any time been in adhesive contact with it, there can be no danger of hemorrhage from this source; therefore completely detach the placenta, rupture the membranes, give ergot, use the forceps, or resort to version at once if the detachment and ergot do not speedily restrain the hemorrhage.

In cases prone to post-partem flooding, the danger after the detachment might be in no way mitigated, but this would be no fault of the previous abnormal condition, and would demand the same treatment as if it had occurred after normal labor.

